These conceptual exhibits are for illustrative purposes only. A future design process will fully assess through traffic concerns and lead to a specific design that incorporates appropriate materials and landscaping, and provides technical solutions for loading and deliveries.
The following guidelines can apply to new or reused buildings in the 4MRV area, to enhance walkability and the pedestrian realm and are options to be considered at the time of reinvestment in properties. Property owners are encouraged to consider these design elements as a menu of choices, rather than requirements, with the goal of contributing to the vision and enhancing the public realm on a site-by-site basis.

**PRIMARY ENTRANCES**

The primary entrance of a building should directly face and open onto a street/sidewalk or a pedestrian-oriented public space. The public space can include a garden, courtyard, or forecourt; the public space should connect directly to the sidewalk. Primary entrances that open directly onto parking lots are discouraged.

**BUILDING FACADES**

**Transparency**

All building façades which face a street or public space should meet the minimum transparency guidelines below. The intent of the façade transparency guidelines is to eliminate expanses of blank walls facing the public realm. The percentage of transparency per story is calculated within the area between the finished floor and finished ceiling and is a total percentage of doors and windows along that portion of the façade. Building facades that exceed the minimum transparency guidelines are encouraged.

1. Minimum building façade transparency for ground story (retail): sixty (60) percent
2. Minimum building façade transparency for ground story (uses other than retail): thirty (30) percent
3. Minimum building façade transparency for upper stories: thirty (30) percent

**Treatments**

Although existing buildings in this area generally have little or no architectural ornamentation, in keeping with their utilitarian industrial purpose, new and existing building facades can be “dressed up” to create interest by:

1. Developing an interesting paint scheme, or
2. Adding public art or ornamentation.

---

**FIGURE 4.7: BUILDING TRANSPARENCY**

- Upper story: 30% minimum
- Ground story retail: 60% minimum
- Ground story (non-retail): 30% minimum
LINER BUILDINGS
The character of some uses of land, such as warehouses and parking structures, may preclude their buildings from meeting the Façade Transparency guidelines. Such buildings can be constructed or retrofitted in a manner that they are separated from adjacent streets (but not alleys) by liner buildings.

1. Liner buildings should be at least fifteen (15) feet in depth; this ensures that the interior area is sufficient to be an actively used space.
2. Liner buildings may be detached from or attached to the primary building.
3. Liner buildings may be used for any purpose allowed on the lot on which they are located except for parking.
4. Liner buildings should meet the Façade Transparency guidelines above.

PEDESTRIAN-ORIENTED SHOPFRONTS
1. The entrances to shopfronts (or an activating use) could be covered, either by an awning, canopy, second floor balcony, arcade / colonnade, or by being inset into the main body of the building (see page 4.12).
2. Shopfronts should provide interior views for pedestrians on sidewalks. The top of all shopfront window sills should be between one (1) and three (3) feet above the adjacent sidewalk. Shopfront windows should extend up from the sill at least eight (8) feet above the adjacent sidewalk.
3. Shopfront doors should contain at least sixty (60) percent transparent glass; solid doors are not desirable.

OUTDOOR DINING
Outdoor dining activates streetscapes. Dining is encouraged to occur in the front or side of buildings. However, a minimum 6’ clear sidewalk dimension should be maintained along the front of the building for pedestrian access.

FIGURE 4.8: SHOPFRONTS AND DINING
SHADING OF SHOPFRONTS

Buildings with a shopfront (or activating use) on the ground story may have awnings, balconies, colonnades, or arcades facing the primary streets; these elements are also encouraged for buildings with other active or public ground floor uses. The following design guidance applies:

1. Awnings over ground-story doors or windows should have a depth of at least five (5) feet and a clear height of at least eight (8) feet above grade. Awnings should extend over at least twenty-five (25) percent of the width of the building’s façade.

2. Second-story balconies should have a depth of at least 6 feet and a clear height below of at least ten (10) feet above grade. Balconies should extend over at least twenty-five (25) percent of the width of the building’s façade. Balconies can have roofs but should be open toward the street.

3. Colonnades and arcades should have a clear width from their support columns to the building’s façade of at least eight (8) feet and a clear height above grade of at least ten (10) feet. Support columns should be spaced no farther apart than they are tall. Colonnades or arcades should extend over at least seventy-five (75) percent of the width of the building’s façade.
PARKING

Per Policy Recommendation C.2.a, a district-wide approach to parking should be explored for the 4MRV area, with expanded on-street parking resources to support existing and future public and private uses.

1. Curb cuts should be shortened and/or consolidated where possible, to improve pedestrian safety and sidewalk continuity. Parking should be accessed from rear alleys (where they exist - for example, in new development in subarea C or D) and/or from side streets if the lot is located on a corner. If no rear alley or side street exists, then efforts should be made to allow access across neighboring properties, where possible.

2. When access to parking must be directly from the street, driveways should be designed such that pedestrian access and safety are maximized.

3. Off-street parking areas for new development: parking lots or garages should be set back from street sidewalks or public spaces a minimum of twenty (20) feet, except:
   a. When the parking is located within the building footprint, and at least five feet below grade and screened from pedestrian view; or
   b. Where constrained sites do not allow a 20’ setback, a low wall or fence (4’ max height) can be used to separate surface parking lots from pedestrians on area streets or in public spaces.
PRIVATE SIGNAGE AND LIGHTING

Signage and lighting in the private realm should enhance the character of the public realm, and help to give identity to the streetscape.

1. Building wall signs (including painted signs as well as signage affixed to the wall) should be an integral component of the facade design. Property owners are encouraged to incorporate materials, designs and lighting to accentuate the unique character of the area.

2. Consideration of security and pedestrian comfort shall be prioritized by increasing illumination low to the ground in parking lots, at building entries, and semi-public spaces.

WAYFINDING, LIGHTING AND FURNITURE

Installation of appropriately-scaled wayfinding signage on public right-of-ways can help to unify a district and encourage pedestrian life. Wayfinding signage that identifies key public areas and unique local designations can be installed and maintained by the County or by a local business or arts organization.

1. It should be consistent in theme and placement, and coordinated with other streetscape furniture (e.g., light posts) to reduce visual clutter in the public realm.

2. Area Plan wayfinding should be coordinated with, and complementary to, the 4MRV Park Master Plan wayfinding measures.

Signage and lighting fixtures within area streets and public spaces can create a unifying scheme or provide interest within the 4MRV district.

1. A combination of pedestrian-scaled street light fixtures (generally not taller than 16 feet) as well as intersection street light fixtures can ensure a well-lit street area and establish a unifying element along the street.

2. The long-term streetspace vision for Four Mile Run Drive (See p. 4.9) should incorporate street furniture that is coordinated with the Jennie Dean Park design process.

FIGURE 4.11: SIGNAGE AND LIGHTING EXAMPLES
FIGURE 4.12: WAYFINDING EXAMPLES
The Four Mile Run Valley Area Plan envisions maintaining the study area’s industrial character while encouraging compatible development and enhancing the natural environment. Implementation will involve zoning changes, promotion of arts uses and a variety of capital improvements.

Two follow-up studies and one action are recommended as the first steps in implementation:

- Arts and Industry District Planning
- Land Use and Zoning Analysis
- Interim Parking Regulation Implementation

ARTS AND INDUSTRY DISTRICT PLANNING

The County will undertake a public process to define a vision for the arts and industrial uses within the study area, including consideration of designating an Arts and Industry District. As part of this community discussion, the types of uses, boundaries, governance and tools will be outlined. The two-part process will start with a technical panel, led by County staff with representatives from the Arlington Commission for the Arts and the Economic Development Commission.

A broader community engagement process, led by County staff and a citizen group, will discuss the opportunities and challenges associated with various arts district scenarios developed by the technical panel. This County Manager appointed citizen group; potentially co-led by a technical panel participant from both the Commission for the Arts and the Economic Development Commission, and including appropriate advisory groups and other relevant stakeholders (artists, business owners, property owners and area residents), will ensure that the potential new arts district works in concert with existing and new businesses.

Prior to initiating the process, staff will develop a scope of work with a more specific timeline. As part of that exercise, staff will strive to streamline the process and find efficiencies to minimize the length of the process, where possible, while also ensuring full public review and thoroughly vetted and analyzed alternatives.

The 4MRV Working Group’s Arts District Committee developed a report (below) containing recommendations for a proposed Arts and Industry District, which can inform the upcoming process. Those recommendations include, among other things, ideas about the character of the proposed district, the types and mix of uses to be encouraged, and strategies for growth. The full report can be reviewed on the 4MRV webpage (www.4mrv.com).
LAND USE AND ZONING ANALYSIS

An in-depth study of zoning alternatives is needed to determine how/whether additional uses or flexibility are needed within the zoning categories found within the study area to facilitate implementation of the vision. In conjunction with potential changes to the Zoning Ordinance, it is recommended that the General Land Use Plan be amended to designate the Four Mile Run Valley Planning District. Additional zoning provisions could then be applied within this proposed district in furtherance of the vision for the area.

PROPOSED AMENDMENT TO THE GENERAL LAND USE PLAN

In conjunction with potential changes to the Zoning Ordinance, it is recommended that the General Land Use Plan be amended to designate the Four Mile Run Valley Planning District. Additional zoning provisions could then be applied within this proposed district in furtherance of the vision for the area.

ZONING REVISIONS

Consistent with the overall vision to retain industrial uses, this Area Plan recommends that the current zoning throughout the area remain in place. The County will review the list of uses permitted in M-1, M-2, and C-2 zones to determine whether additional uses, consistent with the vision, should be permitted. The Arts and Industry District planning process, described above, will inform this analysis. In addition, potential incentives will be explored, including providing additional flexibility with respect to parking and/or signage requirements, for example.

ZONING FOR BROADER USES

This Area Plan designates several properties on Shirlington Road or abutting properties with Shirlington Road frontage for “Broader Uses” in line with the community vision developed in the Nauck Village Center Action Plan. The Action Plan showed future mixed-use office, residential, commercial development in buildings of four to eight stories along the Shirlington Road frontage south of 24th Road South.

Mixed-use zoning will likely encourage redevelopment and/or adaptive reuse of existing buildings. While redeveloping properties for mixed-use development along the east side of Shirlington Road and along 24th Road S., it will be important to incorporate building and site designs that buffer those uses from existing industrial uses to prevent or mitigate future use conflicts. These actions could include buildings designed with noise attenuation or locating parking at the rear between any residential units and industrial uses.

INTERIM PARKING REGULATION IMPLEMENTATION

Parking regulations in this area vary greatly, leading to confusion, and may, in some cases, not serve some users well. The County will implement interim changes to the parking regulations, which will remain in effect until construction of Phase I improvements to Jennie Dean Park commence (anticipated in late 2019); at which time park-
ing needs will be re-assessed and revised, if necessary. The goal of the interim changes will be to balance the parking needs of residents, employees and visitors to the area.

PUBLIC IMPROVEMENTS

The public improvements outlined in the preceding chapters and identified in the map on page 5.5 will be developed over time. The precise timing of their implementation will depend on the availability of funding and staff resources. The County’s overall priorities will determine which transportation, environmental and other capital improvements proceed each year.

The implementation matrix (starting on page 5.6) indicates whether a specific policy or improvement is most likely to occur during the near, mid or long term. The recommended actions or timing indicated herein do not imply a current funding and/or resource commitment by the County Board or the relevant agencies. The actual timing could be sooner or later depending on other factors. Some will depend on private-market decisions.

Some of the priority projects include implementation of the programmed enhancements to the bridges at Walter Reed Drive and Shirlington Road, improvements to Jennie Dean Park, expanding on-street parking, zoning changes to protect industrial uses, and safer at-grade pedestrian and bicycle crossings of Shirlington Road at Four Mile Run.

IMPLEMENTATION MATRIX

The implementation matrix beginning on page 5.6 identifies recommended actions (policies, studies, public improvements) to implement the Area Plan. Each action item includes timing, identification of responsible agency(ies), and potential funding sources.

TIMING

Each implementation action indicates the prospective time frame for initiation:

- Ongoing or with redevelopment (O);
- Short term, 1-3 years (ST);
- Mid term, 4-9 years (MT); and
- Long term, 10 years or longer (LT).

RESPONSIBLE AGENCIES

The matrix identifies the agency or agencies that are expected to be involved in that action. Other agencies may be involved where their perspective and participation would be valuable. The organization expected to take the lead on a specific action is listed first.

Implementing Agencies:

AED  Arlington Economic Development
CPHD  Department of Community Planning, Housing and Development
DES  Department of Environmental Services
DPR  Department of Parks and Recreation
NOVAParks  Northern Virginia Regional Park Authority
WMATA  Washington Metropolitan Area Transit Authority

FUNDING SOURCES

Likely funding sources are listed in the implementation matrix for physical improvement projects that require significant funds or other resources. In addition to the Capital Improvement Plan (CIP), potential funding sources include local (General Fund), state, federal and other private funds.
PUBLIC IMPROVEMENTS

ENVIRONMENT & OPEN SPACE

1. Pursue Four Mile Run buffer improvements and expansion, bank stabilization, invasive species management, and in-stream channel improvements to improve habitat and stability (see policy A2.1)

2. Seek opportunities to better manage flooding of Nauck Branch, including pursuing access easements for proper maintenance and repair/improvement (see policy A2.2).

3. Pursue Park Master Plan area improvements (see policies A3.2 and A3.3)

4. Pursue improvements to Allie S Freed Park, including improved water access/visibility, environmental and cultural interpretation, and an enhanced gateway (see policy A3.5)

5. Infuse public art and environmental and cultural interpretation throughout the Four Mile Run Valley area to instill and enhance a sense of place and connection to its history, where possible. Work with local artists and explore local themes such as industrial history or access to natural areas (see policy B1)

PEDESTRIAN & BICYCLE

6. Improve access along the north and south sides of Four Mile Run while providing overlooks and safe, stable water access at key points in order to reconnect with water and nature while accentuating scenic views along the waterway (see policies A3.4 and C3.1)

7. Improve pedestrian paths and wayfinding along South Walter Reed Drive, South Oxford Street, and Shirlington Road (see policies A3.4 and C3.1)

8. Create potential trail underpasses at South Walter Reed Drive and Shirlington Road to allow for continuous connectivity (see policy A3.4 and C3.2)

9. Add pedestrian crossings across Four Mile Run Drive with median refuge islands at Oxford Street, Oakland Street, and Nelson Street (see policy A3.5)

10. Consider how to incorporate expanded sidewalk or trail space at the northwest corner of Shirlington Road / Arlington Mill Drive to improve safety (see policy C3.1)

11. Improve pedestrian comfort at signalized crossings on Arlington Mill Drive, including improved signage, an extended median through the eastern crosswalk at Randolph Street and a hardened centerline or median for westbound left-turns at Taylor Street (see policy C3.1)

12. At unsignalized crossings on Arlington Mill Drive, evaluate stopping sight distance and add advanced warning signs if needed. Make spot improvements and conduct speed study to determine if enhanced crossing treatments are warranted (see policy C3.1)

13. Four Mile Run/Shirlington Road intersection: Add new high visibility crossings for pedestrians and bicyclists Long term, study underpass and overpass options to determine costs and feasibility (see policy C3.1 and C3.2)

14. Complete pedestrian and bicycle improvements on existing vehicular crossings of Four Mile Run at Walter Reed and Shirlington Road bridges; evaluate utilization and effectiveness of existing bridges including Nelson Street pedestrian bridge to determine whether additional stream crossings are warranted (see policy C3.5)

15. Explore potential for flush street design on S Oxford Street and Oakland Street, to create a flexible space that works for cars, parking, walking, biking, public markets, festivals and other events (see policy C3.1)

STREET & WAYFINDING

16. Evaluate design options for Four Mile Run Drive to maximize on-street parking while ensuring safety for pedestrians and maintaining appropriate traffic flow as well as potential for adding green infrastructure and street trees (see policies A.1, A3.4, C2 and C3.1). Short-term, consider interim implementation using paint, bollards and other temporary treatments to pilot street reconfiguration. Monitor multimodal safety, comfort and access during pilot phase.

17. Gateways: Consider improving major gateways with directional signage and a range of amenities such as seating, trailheads, signature plantings, bike racks, trash cans, and Arlington Parks welcome signage. Consider improving minor gateways with directional signage, cultural or environmental interpretation opportunities, and trash cans (see policy A3.6)

18. Provide locational signage and trail markers at regular intervals along commuter and community trails (see policy A3.6)

Note: Potential public improvements will be phased over time and implemented as funding is available; see implementation matrix for more information on timing.
FIGURE 5.2: PUBLIC IMPROVEMENTS

LEGEND

- Area Plan Boundary
- Parks Master Plan Boundary
- Trail Network

4MRV Area Plan

5.5
# Recommended Actions (policies, studies, public improvements) Timing Implementing Agency Potential Funding Source Page #

## INITIAL ACTIONS

i. Undertake Zoning Analysis to determine how/whether additional uses or flexibility is needed within the zoning categories found within the study area to facilitate implementation of the vision. **ST** CPHD TBD 5.1

ii. Conduct Arts & Industrial District planning process to define a vision for the Arts & Industrial District, the types of uses, boundaries, governance and tools. **ST** AED TBD 5.2

iii. Perform further Parking Analysis: address on district-wide basis, maximize on-street parking, explore use of area parking garages. **ST** DES TBD 5.2

## POLICY GUIDANCE

### A ENVIRONMENT/ SUSTAINABILITY/ OPEN SPACE

#### A1 Neighborhood Green Infrastructure

a. Replace extraneous impervious area with vegetation, plant trees, and implement green infrastructure practices such as pervious pavement, bioswales, bioretention systems, and stormwater planters. **ST - LT** DES / DPR CIP 3.7

b. Support implementation of green design practices in the private realm using design guidelines and incentives where appropriate. **O** DES PRIVATE / GRANT 3.7

c. Integrate green infrastructure practices with public realm transportation, wayfinding/gateway, open space, and public art improvements. Identify and fund high-profile demonstration projects to build awareness and momentum. **ST - LT** DES CIP 3.7

d. Encourage public education enhancements, such as interpretive signage, nature walks, and partnerships with neighborhood schools and other institutions. **O** DES CIP 3.7

e. Implement additional investigation and risk reduction strategies as required to address soil and groundwater contamination from prior land uses. **O** DES CIP / General Fund 3.7

f. Utilize and encourage green building techniques such as green roofs, rainwater harvesting systems, solar energy panels and other efficient building systems, and use recycled and renewable materials. **O** DES PRIVATE / CIP 3.7

#### A2 Stream Restoration and Stabilization

##### A2.1 Four Mile Run

a. Stabilize banks where erosion, scour, and structural failures exist. **O** DES / DPR CIP 3.8

b. Improve and expand vegetated buffers at top of bank. **O** DES / DPR CIP 3.8

c. Naturalize stream banks where possible. **O** DES / DPR CIP 3.8

d. Remove invasive plant species and plant native species. **O** DES / DPR CIP 3.8

e. Investigate stream habitat and stability improvements for the low-flow stream channel. **O** DES / DPR CIP 3.8

f. Evaluate best practices to address stormwater and other impacts from and on Shirlington Dog Park and work with adjacent property owners, on a volunteer basis, to implement improvements over time. **O** DES / DPR PRIVATE / GRANT 3.8

##### A2.2 Nauck Branch
<table>
<thead>
<tr>
<th>#</th>
<th>Recommended Actions (policies, studies, public improvements)</th>
<th>Timing</th>
<th>Implementing Agency</th>
<th>Potential Funding Source</th>
<th>Page #</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Seek opportunities to better manage flooding.</td>
<td>O</td>
<td>DES</td>
<td>CIP</td>
<td>3.8</td>
</tr>
<tr>
<td>b</td>
<td>Pursue drainage easements, over time, to allow for proper maintenance, repair and/or improvement of the facility.</td>
<td>O</td>
<td>DES</td>
<td>CIP / PRIVATE</td>
<td>3.8</td>
</tr>
<tr>
<td></td>
<td><strong>A3 Natural / Open Space Network</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>A3.1 Open Space Network</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Develop a cohesive open space network with enhanced recreation opportunities that can support health and wellness.</td>
<td>O</td>
<td>DPR</td>
<td>CIP</td>
<td>3.10</td>
</tr>
</tbody>
</table>
| b  | As part of a corridor-wide public art project:  
• Integrate natural and cultural resource education and interpretation; and  
• Work with local artists to incorporate artistic elements.                                                                                                                                  | O      | AED                 | CIP       | 3.10   |
<p>|    | <strong>A3.2 Park Master Plan Spaces</strong>                                                                                                                                                                                                                         |        |                     |            |        |
| a  | Jennie Dean Park - Improve and replace existing amenities, while incorporating new spaces and amenities to meet growing recreation demands.                                                                                                              | ST     | DPR                 | CIP       | 3.10   |
| b  | Shirlington Park - Improve its function as a casual use space and gateway between Shirlington Village and the arts, recreation, and business uses north of Four Mile Run stream.                                                                          | MT     | DPR                 | CIP       | 3.10   |
| c  | Shirlington Dog Park - Keep the dog park as it is today, in terms of maintaining its current size and configuration, while providing for its future sustainability by seeking innovative ways to address environmental, operational, safety, and aesthetic conditions (including, but not limited to, stormwater management and shoreline maintenance). | LT     | DPR                 | CIP       | 3.10   |
|    | <strong>A3.3 Acquisition / Phasing</strong>                                                                                                                                                                                                                         |        |                     |            |        |
| a  | Acquire additional properties east of Nelson Street, over time, to implement the vision for an expanded Jennie Dean Park.                                                                                                                                  | LT     | DPR                 | CIP       | 3.10   |
| b  | Seek CIP or other funding for future phases of park development (beyond Phase I, Jennie Dean Park).                                                                                                                                                       | LT     | DPR                 | N/A       | 3.10   |
| c  | Investigate obtaining public access to the western end of the Shirlington Dog Park from Walter Reed Drive.                                                                                                                                                | ST     | DPR / DES           | TBD       | 3.10   |
|    | <strong>A3.4 Access</strong>                                                                                                                                                                                                                                          |        |                     |            |        |
| a  | Improve access along the north and south sides of Four Mile Run while providing overlooks and safe, stable water access at key points in order to reconnect with water and nature while accentuating scenic views along the waterway. | ST - LT | DES / DPR           | CIP       | 3.10   |
| b  | Improve sidewalk conditions and intersection accessibility along South Four Mile Run Drive as part of a complete street enhancement.                                                                                                                     | O      | DES                 | CIP       | 3.10   |
| c  | Improve pedestrian paths, accessibility, and wayfinding along South Walter Reed Drive, South Oxford Street, and Shirlington Road.                                                                                                                                 | O      | DES                 | CIP       | 3.10   |
| d  | Create potential trail underpasses or overpasses at South Walter Reed Drive and Shirlington Road to allow for continuous connectivity.                                                                                                                   | LT     | DES                 | CIP       | 3.10   |
|    | <strong>A3.5 Allie S. Freed Park</strong>                                                                                                                                                                                                                            |        |                     |            |        |
| a  | Conduct stream restoration and stabilization as part of an enhanced riparian buffer.                                                                                                                                                                      | LT     | DPR / DES           | CIP       | 3.12   |</p>
<table>
<thead>
<tr>
<th>#</th>
<th>Recommended Actions (policies, studies, public improvements)</th>
<th>Timing</th>
<th>Implementing Agency</th>
<th>Potential Funding Source</th>
<th>Page #</th>
</tr>
</thead>
<tbody>
<tr>
<td>b</td>
<td>Provide water access from Four Mile Run Trail along the lower-elevation southern side of the Run.</td>
<td>LT</td>
<td>DPR</td>
<td>CIP</td>
<td>3.12</td>
</tr>
<tr>
<td>c</td>
<td>Provide tree canopy overlooks along the Promenade Trail at the higher-elevation northern side of the Run.</td>
<td>LT</td>
<td>DPR</td>
<td>CIP</td>
<td>3.12</td>
</tr>
<tr>
<td>d</td>
<td>Include environmental and cultural interpretation.</td>
<td>LT</td>
<td>DPR / AED</td>
<td>CIP</td>
<td>3.12</td>
</tr>
<tr>
<td>e</td>
<td>Create an enhanced gateway at South Walter Reed Drive with park user accommodations, highlighting the connection between the Four Mile Run Trail and the Long Branch Trail.</td>
<td>LT</td>
<td>DPR</td>
<td>CIP</td>
<td>3.12</td>
</tr>
<tr>
<td>A3.6</td>
<td>Signage / Wayfinding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Consider improving major gateways with directional signage and a range of amenities such as seating, trailheads, signature plantings, bike racks, trash cans, and Arlington Parks welcome signage.</td>
<td>O</td>
<td>DES</td>
<td>CIP</td>
<td>3.15</td>
</tr>
<tr>
<td>b</td>
<td>Consider improving minor gateways with directional signage, cultural or environmental interpretation opportunities, and trash cans.</td>
<td>O</td>
<td>DES</td>
<td>CIP</td>
<td>3.15</td>
</tr>
<tr>
<td>c</td>
<td>Provide locational signage and trail markers at regular intervals along commuter and community trails.</td>
<td>O</td>
<td>DES</td>
<td>CIP</td>
<td>3.15</td>
</tr>
<tr>
<td>B</td>
<td>DEVELOPMENT FORM / LAND USE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1</td>
<td>Development Form and Character</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Encourage reuse of existing buildings where possible.</td>
<td>O</td>
<td>CPHD</td>
<td>N/A</td>
<td>3.17</td>
</tr>
<tr>
<td>b</td>
<td>Implement Design Guidelines (see Chapter 4) to guide future improvements and new development. The standards should reinforce a high quality pedestrian realm, flexible use and an industrial aesthetic.</td>
<td>O</td>
<td>CPHD</td>
<td>N/A</td>
<td>3.17</td>
</tr>
<tr>
<td>c</td>
<td>Employ environmental and cultural interpretation where possible throughout the Four Mile Run Valley area to instill and enhance a sense of place and connection to its history.</td>
<td>O</td>
<td>AED</td>
<td>CIP / PRIVATE</td>
<td>3.17</td>
</tr>
<tr>
<td>d</td>
<td>Incorporate public art throughout the Four Mile Run Valley area and consider local history and environmental concerns as its subject matter.</td>
<td>O</td>
<td>AED</td>
<td>N/A</td>
<td>3.17</td>
</tr>
<tr>
<td>e</td>
<td>Permit broader uses, including residential, in limited areas (identified on Figure 3.1) to complement and coordinate with development allowed in the Nauck Revitalization Area along with improved streetscape along Shirlington Road.</td>
<td>O</td>
<td>CPHD</td>
<td>N/A</td>
<td>3.17</td>
</tr>
<tr>
<td>f</td>
<td>Examine the Zoning Ordinance to develop additional flexibility (i.e. parking, signage, etc.) to incentivize development in keeping with the vision for the area.</td>
<td>ST</td>
<td>CPHD</td>
<td>N/A</td>
<td>3.17</td>
</tr>
<tr>
<td>B2</td>
<td>Land Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B2.1</td>
<td>Preserve Existing Industrial Uses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Maintain industrial zoning for all properties that are currently zoned for industrial uses so that industrial land will remain available for small businesses, including both existing businesses and similar operations into the future.</td>
<td>O</td>
<td>CPHD</td>
<td>N/A</td>
<td>3.18</td>
</tr>
<tr>
<td>b</td>
<td>While allowing for mixed-use development in portions of Subarea D, through changes on the General Land Use Plan and zoning, incorporate building and site design guidance that buffers those uses from existing industrial uses to prevent or mitigate future use conflicts.</td>
<td>O</td>
<td>CPHD</td>
<td>N/A</td>
<td>3.18</td>
</tr>
<tr>
<td>c</td>
<td>Develop ideas to strengthen business retention in the area including: • Developing an on-street parking design that maximizes the number of available spaces. • Providing outreach and technical assistance to assist existing businesses in complying with stormwater management requirements, avoiding any flood risks and incorporation of sustainability measures, e.g., solar electricity.</td>
<td>ST</td>
<td>DES</td>
<td>CIP</td>
<td>3.18</td>
</tr>
<tr>
<td>#</td>
<td>Recommended Actions (policies, studies, public improvements)</td>
<td>Timing</td>
<td>Implementing Agency</td>
<td>Potential Funding Source</td>
<td>Page #</td>
</tr>
<tr>
<td>----</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------</td>
<td>---------------------</td>
<td>--------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>d</td>
<td>Continue to work with the Business Association, using its network as a conduit for Arlington Economic Development to offer 4MRV businesses access to technical assistance where available. Consult with the business association, property owners and business owners on the potential future expansion of arts uses in the area.</td>
<td>O</td>
<td>AED / CPHD</td>
<td>N/A</td>
<td>3.18</td>
</tr>
<tr>
<td>B2.2 Public Uses</td>
<td>a Sites within Four Mile Run Valley should continue to be considered for public use, within the context of a countywide review process.</td>
<td>O</td>
<td>DES / DPR</td>
<td>N/A</td>
<td>3.18</td>
</tr>
<tr>
<td></td>
<td>b Consolidate and co-locate County uses, where possible.</td>
<td>O</td>
<td>DES</td>
<td>N/A</td>
<td>3.18</td>
</tr>
<tr>
<td>B2.3 Guidance for Subareas C and D</td>
<td>a Generally, support the continuation of industrial and public uses within these subareas.</td>
<td>O</td>
<td>CPHD</td>
<td>N/A</td>
<td>3.18</td>
</tr>
<tr>
<td></td>
<td>b Reinforce guidance from the Nauck Village Center Plan, with similar heights, density, and use mix, for sites indicated for “Broader Uses” within Subarea D.</td>
<td>O</td>
<td>CPHD</td>
<td>N/A</td>
<td>3.18</td>
</tr>
<tr>
<td></td>
<td>c Encourage a mix of building types, with 4 to 6 stories maximum height.</td>
<td>O</td>
<td>CPHD</td>
<td>N/A</td>
<td>3.18</td>
</tr>
<tr>
<td>B3 Building Height</td>
<td>a Maintain building height in the majority of the study area at 75’, which is consistent with existing M-1 and M-2 zoning.</td>
<td>O</td>
<td>CPHD</td>
<td>N/A</td>
<td>3.20</td>
</tr>
<tr>
<td></td>
<td>b Allow a future County-owned parcel, immediately adjacent to I-395 and distant from surrounding neighborhoods, to have buildings permitted up to a maximum height of 120’.</td>
<td>LT</td>
<td>DES / CPHD</td>
<td>N/A</td>
<td>3.20</td>
</tr>
<tr>
<td></td>
<td>c Limit height of buildings adjacent to the historic Lomax A.M.E. Church and west of and adjacent to Shirlington Road to 45’.</td>
<td>O</td>
<td>CPHD</td>
<td>N/A</td>
<td>3.20</td>
</tr>
<tr>
<td>B4 Arts and Industry District</td>
<td>a Work with the Arts Commission and the arts community to focus on the production needs of artists and develop a strategy for expanding arts uses within the study area consistent with Enriching Lives: Arlington Arts and Culture Strategy.</td>
<td>ST</td>
<td>AED</td>
<td>N/A</td>
<td>3.21</td>
</tr>
<tr>
<td></td>
<td>b Explore opportunities to promote the expansion of arts uses within the area, including the evaluation of an Arts and Industry District.</td>
<td>O</td>
<td>AED</td>
<td>N/A</td>
<td>3.21</td>
</tr>
<tr>
<td></td>
<td>c Encourage the introduction of additional arts, maker uses, and new retail uses in the area between Nelson Street and Walter Reed Drive as properties become available.</td>
<td>O</td>
<td>AED / CPHD</td>
<td>N/A</td>
<td>3.21</td>
</tr>
<tr>
<td></td>
<td>d Collaborate with adjoining business and property owners and the business association in developing appropriate street designs for Oakland Street to further the vision for the area.</td>
<td>MT</td>
<td>DES / AED</td>
<td>GENERAL FUND</td>
<td>3.21</td>
</tr>
<tr>
<td></td>
<td>e Work with the Arts Commission, the Public Art Committee, Public Art Staff and the community to identify opportunities, per the Public Art Master Plan, to integrate public art within identified parks, public spaces, and other Four Mile Run Valley locations.</td>
<td>O</td>
<td>AED</td>
<td>CIP / PRIVATE</td>
<td>3.21</td>
</tr>
<tr>
<td></td>
<td>f Work with Virginia Dominion Power, the arts community, and area businesses and residents to explore possible artistic screening options for the substation located on Four Mile Run Drive.</td>
<td>MT</td>
<td>AED / CPHD</td>
<td>N/A</td>
<td>3.21</td>
</tr>
<tr>
<td>B5 Guidance for County-Owned Properties within Subarea B</td>
<td>a Continue to meet performance, studio, rehearsal, storage and meeting space needs for artists, arts organizations and the County, in the short-to-medium term.</td>
<td>MT</td>
<td>AED</td>
<td>GENERAL FUND</td>
<td>3.22</td>
</tr>
<tr>
<td>#</td>
<td>Recommended Actions (policies, studies, public improvements)</td>
<td>Timing</td>
<td>Implementing Agency</td>
<td>Potential Funding Source</td>
<td>Page #</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------------------</td>
<td>--------</td>
<td>---------------------</td>
<td>-------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>b</td>
<td>Examine how to best utilize the County’s land holdings to implement the Plan’s vision, consistent with existing County policy, in the long term.</td>
<td>ST</td>
<td>AED / DES / DPR</td>
<td>GENERAL FUND</td>
<td>3.22</td>
</tr>
<tr>
<td>C</td>
<td>STREET DESIGN / TRANSPORTATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>Safety and Traffic Flow Improvements</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Complete an in-depth study of the Four Mile Run / Shirlington Road intersection to develop a design that better accommodates east-west bicycle and pedestrian crossings, minimizes vehicular delay, and promotes overall safety for all modes.</td>
<td>MT</td>
<td>DES</td>
<td>CIP / VDOT</td>
<td>3.23</td>
</tr>
<tr>
<td>b</td>
<td>Consider intersection design and operations improvements at key locations within the study area to address existing traffic and potential future traffic growth.</td>
<td>MT</td>
<td>DES</td>
<td>CIP</td>
<td>3.23</td>
</tr>
<tr>
<td>C2</td>
<td>Four Mile Run Street Design and Parking</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Develop policies and practices to address parking on a district-wide basis, utilizing expanded on-street parking resources to support existing and future public and private uses.</td>
<td>O</td>
<td>DES</td>
<td>N/A</td>
<td>3.23</td>
</tr>
<tr>
<td>b</td>
<td>Develop and review street design alternatives for Four Mile Run Drive with community stakeholders to maximize on-street parking, while also ensuring safety for pedestrians and maintaining appropriate traffic flow. • Implement changes in phases; monitor for effectiveness and safety. • Explore utility pole relocation or replacement as part of long-term streetscape implementation. • Explore continued partnerships with NOVAParks to ensure seamless trail connections and sidewalks on north side of Four Mile Run Drive.</td>
<td>O</td>
<td>DES / NOVAParks</td>
<td>CIP</td>
<td>3.23</td>
</tr>
<tr>
<td>c</td>
<td>Explore the possibility to augment parking resources by utilizing existing parking garages in the surrounding area at off-peak times.</td>
<td>O</td>
<td>DES</td>
<td>N/A</td>
<td>3.23</td>
</tr>
<tr>
<td>d</td>
<td>Maximize recreation and/or casual use space within Jennie Dean Park in lieu of providing additional on-site parking, to the greatest extent possible, by utilizing on-street parking resources.</td>
<td>ST</td>
<td>DES / CPHD / DPR</td>
<td></td>
<td>3.23</td>
</tr>
<tr>
<td>C3</td>
<td>Pedestrian and Bicycle Improvements</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C3.1</td>
<td>Pedestrian</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Widen and improve the pedestrian zone along the south side of Four Mile Run Drive by reconfiguring the roadway.</td>
<td>O</td>
<td>DES</td>
<td>CIP</td>
<td>3.28</td>
</tr>
<tr>
<td>b</td>
<td>Make the sidewalks on the south side of Four Mile Run Drive continuous by adding the segment between Nelson Street and Shirlington Road.</td>
<td>ST</td>
<td>DES</td>
<td>CIP</td>
<td>3.28</td>
</tr>
<tr>
<td>c</td>
<td>Study pedestrian crossings across Four Mile Run Drive with median refuge islands at Oxford Street, Oakland Street, and Nelson Street.</td>
<td>O</td>
<td>DES</td>
<td>CIP</td>
<td>3.28</td>
</tr>
<tr>
<td>d</td>
<td>Study new high visibility crossings for pedestrians and bicyclists at the intersection of Four Mile Run Drive and Shirlington Road.</td>
<td>MT</td>
<td>DES</td>
<td>CIP</td>
<td>3.28</td>
</tr>
<tr>
<td>e</td>
<td>Consider how to incorporate expanded sidewalk or trail space at the northwest corner of Shirlington Road / Arlington Mill Drive to improve safety.</td>
<td>ST</td>
<td>DES / DPR</td>
<td>CIP</td>
<td>3.28</td>
</tr>
<tr>
<td>f</td>
<td>Explore potential for flush street design on S. Oxford Street and S. Oakland Street, to create a flexible space that works for cars, parking, walking, biking, public markets, festivals and other events.</td>
<td>MT</td>
<td>DES</td>
<td>CIP</td>
<td>3.28</td>
</tr>
<tr>
<td>g</td>
<td>Improve curb ramps and intersections along Four Mile Run Drive to provide continuous accessibility for people with disabilities.</td>
<td>O</td>
<td>DES</td>
<td>CIP</td>
<td>3.28</td>
</tr>
<tr>
<td>#</td>
<td>Recommended Actions (policies, studies, public improvements)</td>
<td>Timing</td>
<td>Implementing Agency</td>
<td>Potential Funding Source</td>
<td>Page #</td>
</tr>
<tr>
<td>----</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------</td>
<td>---------------------</td>
<td>--------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>h</td>
<td>Consider changes at uncontrolled crossings of Arlington Mill Road to improve safety and comfort for pedestrians crossing the street.</td>
<td>O</td>
<td>DES</td>
<td>CIP</td>
<td>3.28</td>
</tr>
<tr>
<td></td>
<td><strong>C3.2 Bicycle</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a(1)</td>
<td>Evaluate the east-west pedestrian and bicycle crossings of Shirlington Road at Four Mile Run Drive: Study options for safer at-grade crossings</td>
<td>ST</td>
<td>DES / NOVAParks</td>
<td>CIP</td>
<td>3.28</td>
</tr>
<tr>
<td>a(2)</td>
<td>Evaluate the east-west pedestrian and bicycle crossings of Shirlington Road at Four Mile Run Drive: Study underpass options to determine costs and feasibility.</td>
<td>LT</td>
<td>DES</td>
<td>CIP</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Evaluate the feasibility of a Four Mile Run Trail underpass at Walter Reed Drive, considering cost and Four Mile Run stream channel flow and floodplain impacts and constraints.</td>
<td>LT</td>
<td>DES</td>
<td>CIP / STATE / FEDERAL</td>
<td>3.28</td>
</tr>
<tr>
<td>c</td>
<td>Ensure that the proposed enhancements to the bridge at Shirlington Road and the enhancements being added to the bridge at Walter Reed Drive will make access to Arlington Mill Drive easier and improve connectivity between the W&amp;OD Trail, Four Mile Run Trail, Jennie Dean Park, and the development along Four Mile Run Drive and in Shirlington.</td>
<td>O</td>
<td>DES</td>
<td>N/A</td>
<td>3.28</td>
</tr>
<tr>
<td></td>
<td><strong>C3.3 Stream Crossings</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Complete design and construction of the Walter Reed and Shirlington Road bridges.</td>
<td>ST / MT</td>
<td>DES</td>
<td>CIP / STATE</td>
<td>3.28</td>
</tr>
<tr>
<td>b</td>
<td>Evaluate the effectiveness of the planned bicycle and pedestrian improvement to the Walter Reed and Shirlington Road bridges, over time, to determine whether additional Four Mile Run stream crossings are warranted.</td>
<td>MT</td>
<td>DES</td>
<td>N/A</td>
<td>3.28</td>
</tr>
<tr>
<td>c</td>
<td>Evaluate the utilization of the Nelson Street pedestrian bridge. Determine whether existing or future demand warrants widening or other improvements, such as lighting.</td>
<td>LT</td>
<td>DES</td>
<td>N/A</td>
<td>3.28</td>
</tr>
<tr>
<td></td>
<td><strong>C4 Transit</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>As part of a multimodal approach, consider proposed future changes to transit in the area, including the expansion of the Shirlington Transit Center; the proposed West End Transitway Bus Rapid Transit project being led by the City of Alexandria, which would serve the study area along Arlington Mill Drive; and proposed transit routing and service adjustments, as described in the Arlington County Transit Development Plan, which can add more bus service on the existing routes for reduced wait times between buses.</td>
<td>O</td>
<td>DES</td>
<td>CIP / WMATA / STATE / FEDERAL</td>
<td>3.31</td>
</tr>
<tr>
<td>b</td>
<td>Ensure that planned street improvements in the area will accommodate improved transit, including transit access and a comfortable space for bus stops, boarding and alighting.</td>
<td>O</td>
<td>DES</td>
<td>CIP</td>
<td>3.31</td>
</tr>
<tr>
<td>c</td>
<td>Improve bus stops/shelters along Four Mile Run Drive to provide greater comfort for patrons.</td>
<td>O</td>
<td>DES</td>
<td>CIP / STATE / FEDERAL</td>
<td>3.31</td>
</tr>
</tbody>
</table>
APPENDIX A: PARK MASTER PLAN

This Appendix includes a brief summary of Park Master Plan analysis, themes, and concepts that were included as part of the adopted 4MRV Policy Framework.

The Park Master Plan, developed in coordination with the Area Plan, provides a vision for the comprehensive replacement and realignment (exclusively for park purposes) of existing park features and the addition of new park amenities to meet the growing demand for active recreation, cultural resources and natural resource preservation.

The Park Master Plan is a comprehensive Master Plan for Jennie Dean Park, Shirlington Park, the Shirlington Dog Park and other potential park spaces. The Plan is phased and incorporated into the County’s Capital Improvement Program (CIP). The Park Master Plan establishes a vision, policies and implementation strategies, including but not limited to, design guidelines detailing the placement, orientation, materials and programming of open space/park amenities. The Master Plan includes recommendations for use, sizes and locations of parks within the study area; park area circulation, multi-modal transportation and parking needs; environmental/floodplain/Resource Protection Area/energy considerations; massing and phasing for potential indoor facilities and cultural amenities; and exploration of opportunities to re-naturalize and integrate the Four Mile Run into the parks.

PARKS MASTER PLAN PLAN THEMES

During the planning process, several recurring themes were heard at major public engagement events and reinforced in discussions with the Working Group. Themes for the Parks area Master Plan include:

- Needs for UNPROGRAMMED SPACE
- INCREASE VISIBILITY into park
- Play structure(s) to ACCOMMODATE BOTH 2-5 AND 5-12 AGE GROUPS
- MOVE THE FIELDS UP TOWARDS 4MR DRIVE away from flood-prone areas while being sensitive to neighborhoods
- MULTI-PURPOSE FACILITIES and layering
- INTEGRATE THE ARTS into park planning
- MULTI-USE ACTIVITY CENTER (either in the park or nearby)
- Link riparian zone and associated restoration to larger SYSTEM OF PARKS AND NATURAL AREAS OF 4MR
- Respect FLOODWAY AND FLOODPLAIN
- CONNECT NEIGHBORHOODS TO RIPARIAN ZONE for environmental education, relaxation and enjoyment
- NEARBY RESIDENTS WITHOUT YARDS DEPEND ON PARK AREAS for their backyard – playground, picnic, walking, etc.
- MORE GRASS OR TREES or just more trees
- MAINTAIN TWO FIELDS at a minimum
- Layer PARKING beneath structured facilities / fields
- ADDRESS SAFETY issues using Crime Prevention Through Environmental Design (CPTED)
- Address NEEDS OF TEENS – more outreach
- MAINTAIN EXISTING SIZE / CONFIGURATION OF DOG PARK
FIGURE A.1: PARK MASTER PLAN STUDY AREA EXISTING CONDITIONS

LEGEND
- Shirlington Dog Park (fence)
- Jennie Dean Park, Shirlington Park
- Other County Owned Properties
- Existing Sidewalk or Trail
- Top of Bank
- Four Mile Run
- Floodway
- RPA
- Existing Park Entrances
- Parks Master Plan Study Area
FIGURE A.2: DEVELOPMENT OF PARK MASTER PLAN CONCEPT ALTERNATIVES
PARK MASTER PLANNING STUDY AREA

The 4MRV Park Master Plan (PMP) area is bounded by Four Mile Run Drive between South Nelson Street and Shirlington Road on the north, Shirlington Road on the east, South Arlington Mill Drive on the south and South Walter Reed Drive on the west. The study area includes three (3) parks: Jennie Dean Park, Shirlington Park, and Shirlington Dog Park. Four Mile Run traverses the PMP area from west to east.

Jennie Dean Park (3630 27th Street South): the approximately 12-acre park currently includes two (2) lighted diamond fields for baseball and softball, a lighted basketball court, two (2) lighted tennis courts, a restroom/picnic shelter building with covered space for three picnic tables. The park also includes an open grassy area, a playground and a picnic area among the mature trees adjacent to Four Mile Run.

Shirlington Park (2601 S. Arlington Mill Dr.): the approximately 11-acre total park area (which includes the area of Shirlington Park, Shirlington Dog Park and the stretch of Four Mile Run bisecting both areas) includes a stretch of Four Mile Run stream that bisects the park into two sections: the Shirlington Dog Park to the north and Shirlington Park to the south. Of the 11 acres, 2.3 acres is the total land area associated with Shirlington Park, which includes a shared use path (Four Mile Run Trail) and open space along the southern boundary of Four Mile Run. The path accommodates both pedestrians and bicyclists. The site features fitness stations, bicycle racks, benches, and a Capital Bikeshare Station.

Shirlington Dog Park (2710 S. Oakland St.): the approximately 2.5-acre dog park is adjacent to the northern bank of Four Mile Run and stretches from South Oakland Street to the east to beyond South Oxford Street. This area consists of a large fenced area where dogs can exercise and wander freely. A separately fenced small dog area is located near the main entrance. Amenities include dog water fountains, dog waste facilities, benches, shade trees, and an information kiosk.

Throughout the planning process, key issues have been identified that shaped the development of planning alternatives and the examination of trade-offs that need to be made in developing the Park Master Plan. These issues included:

**FOUR MILE RUN STREAM**
- The relationship between recreational uses and the Resource Protection Area (RPA) generally located within 100’ feet of the top of bank (See Figure A.1)
- The role that associated riparian areas play in addressing needs for casual use open space and resource education and interpretation.
- Management of invasive species.
- Water quality and suitability for recreational use (especially in summer months).

**4MR TRAIL/SHIRLINGTON PARK**
- Conflict between casual users and high speed bicycle commuting.
- Role of Shirlington Park as a link between Shirlington Village and Jennie Dean Park.

**SHIRLINGTON DOG PARK**
- Rooftop drainage washing across the dog park causes erosion of the surface.
- Streambank erosion (approximately eight feet in the last 20 years).
- Visibility from Four Mile Run towards the dog park – cannot see into the dog park through buildings on South Oakland and South Oxford Streets.
- The size of the dog park, the water quality impact from bare soil and dog waste, as well as its heavy use in relation to potential water quality solutions (filtering and buffering taking up usable space).
JENNIE DEAN PARK

- Accommodating unknown plans for WETA parcel (both short- and long-term).
- Expanding recreational opportunities for changing usage patterns and needs.
- Fencing and use restrictions associated with diamond fields.
- Defining specific areas to meet expanding casual use open space needs.

PARKING AND CIRCULATION

- Parking demand for the combination of programmed uses and activities (dog park, potential arts district).
- Safe pedestrian access to park areas from the Nauck and Shirlington neighborhoods.
- Coordination of future considerations and plans for South Walter Reed Drive and Shirlington Road to accommodate pedestrian crossing needs.

PERSONAL SAFETY

- Greater visibility into and out of the park.
- Hidden places along Four Mile Run escarpment and back sides of industrial buildings in dog park.

JENNIE DEAN PARK ALTERNATIVES (PAGES A.6-A.7)

Following an extensive civic engagement process that began with seven alternatives, three options were developed for Jennie Dean Park to address the issues and trade-offs that must be made to move forward with a recommended concept. Evaluation criteria were developed based upon input provided by the County Board, the Working Group, and from public input gathered at two public workshops and additional outreach methods.

The resulting criteria covered the siting of six design elements with the goal of optimizing the desired comprehensive replacement and realignment of existing park features (exclusively for park purposes) and the addition of new park amenities to meet the growing demand for active and casual use open space recreation, cultural resources and natural resource preservation.

- Diamond fields - addressing orientation, space utilization, proximity to adjoining streets and the RPA, and potential for incorporating a rectangular field overlay.
- Playground and Picnic Shelter/Restroom - addressing potential for shade, proximity away from incompatible adjoining program uses (e.g. dog park and roadway) and close to compatible uses (e.g. restroom).
- Natural Areas/Casual Use Open Space – providing ample trees and whether the area is associated with Four Mile Run or adjacent to Four Mile Run Drive Parking - whether parking is provided using existing or expanded surface lots or through more efficient utilization of on-street parking spaces.
- Athletic Courts - whether expanded opportunities are provided for court sports, proximity to the Resource Protection Area (RPA), and whether the replacement courts need to be phased.
- Environmental/Regulatory/Noise - potential for addressing the RPA, floodplain, and stormwater management needs and requirements, impact on existing mature trees and relationship to adjoining neighborhoods.

These three alternatives were further refined and evaluated by a sub-committee of the Four Mile Run Working Group (4MRVWG). The committee developed two concept alternatives that were presented and discussed with the 4MRVWG in April 2018. The recommended concept, supported by a vote of 14-9, is shown on the following pages.
When evaluating the various concept alternatives for Jennie Dean Park, the general trade-offs included having open space near the stream or near South Four Mile Run Drive, locating the diamond fields closer to the roads or closer to the stream, and having the playground and pavilion in a more natural area or closer to the roadway. The Recommended Concept, Phase I (above) is illustrated with the WETA parcel remaining and access to the parcel via 27th Street South provided. The concept places the lighted diamond fields along South Nelson Street, the playground and restrooms along the frontage of Four Mile Run Drive, and a lighted basketball court, lighted tennis court and large picnic shelter in an area just south of the WETA parcel. A soft path north of Four Mile Run is also implemented. The small surface lot on the east of the site is retained to provide nearby parking in addition to the on-street parking along South Nelson Street and South Four Mile Run Drive.
The Recommended Concept, Phase 2 (above) illustrates Jennie Dean Park if the WETA parcel is acquired as well as other parcels in the northeast portion of the site. This concept shows the final configuration of all site elements including a relocated lighted basketball court within the WETA parcel, two (2) lighted tennis courts south of the WETA parcel, and expanded casual use open space east of the basketball court.
SHIRLINGTON PARK ALTERNATIVES

Four (4) alternatives were developed for Shirlington Park to address the issues associated with the mix of uses and users along Four Mile Run Trail and to develop the idea of Shirlington Park as a gateway and transition between Shirlington Village and the arts and recreation oriented uses north of Four Mile Run Drive.

Alternatives were arrayed to emphasize arts or nature or a combination of both. All alternatives included vegetation and stormwater management, riparian restoration, incorporation of gateways, wayfinding and placemaking. Four (4) alternatives were evaluated:

A. Baseline Concept – this concept included all the common elements noted above and concentrated locations of placemaking elements at specific focal points.

B. Concept with increased emphasis on access to nature – this concept with overlooks provided educational and interpretive opportunities focused on telling the story of Four Mile Run’s urbanization and renewal.

C. Concept with increased emphasis on public art at defined gateways and overlooks.

D. Concept with a combination of art and nature – this concept would integrate public art with the interpretation of nature (combining the elements of Concepts B and C as described above).

FIGURE A.5: SHIRLINGTON PARK CONCEPT

The concept created for Shirlington Park responds to the needs of the park users who use the busy shared use path, as well as the ability of the park to link destinations within the 4MRV Parks system to surrounding areas. To minimize crowding along the shared use path and offer respite spaces for natural resource education or interpretation, riparian access paths and overlooks are proposed at key locations along the 4MR. Although Four Mile Run is an urban stream, secondary contact recreation is generally acceptable with common sense precautions. The overlooks create a low-impact solution for park users to have visual access to the water. Predominantly located within an RPA, invasive species management and riparian restoration are proposed along the bank of the 4MR to add value to the habitat over time and assist in filtering stormwater runoff.
SHIRLINGTON DOG PARK

The 4MRV Working Group formed a separate committee (the Shirlington Dog Park Committee) to address the specific needs of the dog park with the result of working towards maintaining the dog park’s current size and configuration, while also providing for its future sustainability by seeking new and innovative ways to address water quality, dog park operations and safety considerations, shoreline access, and other environmental considerations. Improvements to the dog park’s aesthetic conditions and immediate adjacent areas should be investigated.

FIGURE A.6: SHIRLINGTON DOG PARK

Note:
In an effort to preserve the existing size, configuration, and character of Shirlington Dog Park, the park will remain in its existing condition with improvements over time. The Shirlington Dog Park Committee Final Report to the Four Mile Run Valley Working Group (September 15, 2017) outlines short-term, medium-term, and long-term recommendations for creating minor physical improvements within the park (that may disturb less than 2,500 square feet), programmatic improvements, and considerations should a stormwater management triggering event occur. Recommendations that address erosion and water quality issues within the park include discontinuing mowing along the fence edge to increase vegetative buffers (and stabilize bare soil), increasing plantings along the stream bank, employing techniques to help protect trees, increasing the availability of trash receptacles, improving signage and public education, limiting access to the stream to defined points, and developing a pilot program to address rooftop stormwater.
APPENDIX B: ENVIRONMENT / SUSTAINABILITY

Appendix B provides additional information about existing conditions for the 4MRV area water resources, as well as green infrastructure, stream restoration, and sustainability concepts; it supplements information found in Chapters 2 and 3 of the Plan document.

FOUR MILE RUN RIVER GEOMORPHOLOGY

Probably the single most important factor affecting restoration options of Four Mile Run is the run’s degree of connection or disconnection to its floodplain. There are many factors that will affect restoration options and are typical of urban streams/rivers, including altered hydrology upstream, delivery of pollutants from upstream sources, and a range of infrastructure constraints (road crossings, sewer crossings, weirs, and storm drainage outfalls). But a major constraint is the confining nature of the run within the study area. Rivers that constrain all flows within a uniform cross-section cannot realize the natural benefits of flows being able to access a floodplain during larger storms above the so-called bankfull elevation. When larger flows are confined to a uniform cross-section, excessive velocities and associated shear stresses translate into damaging conditions to the river’s bottom and lower banks.

 While the whole run has been modified and most of the banks have been armored with large riprap within the study area, the reach upstream of Walter Reed Drive (Reach 3) appears to have remnant floodplain features, albeit much smaller areas than those that would be considered natural. It appears that the previous erosion control and flood mitigation work of the 1970s and 1980s did not completely reshape the natural channel in this reach along both banks. Downstream of Walter Reed Drive, the entire channel cross-section appears to have been reshaped to a trapezoidal section of sufficient dimensions to carry much of the 100-year flood within the one uniform section.

The river geomorphology that has evolved since the flood management work has resulted in a somewhat more natural system upstream of Walter Reed Drive (some sinuosity of the low flow channel, some pool/riffle/run components, and remnant river banks in some areas). This will afford some different restoration opportunities than the more confined lower reaches.

RESILIENCY AND CLIMATE CHANGE

In 2013, Arlington County adopted its Community Energy Plan to respond to the increasing impacts of climate change, specifically increases in greenhouse gases. The plan’s primary purpose is to guide the County, inclusive of government operations as well as local businesses and residents, in being more energy efficient and making better decisions around energy. Doing so will help reduce energy costs, make energy usage more reliable, and improve the quality of the natural environment.

In addition to making smart energy choices, the County can also be more responsive to other indicators of climate change, including impacts on flooding and water quality. Though the study area is located beyond the reach of the Potomac River estuary tidal influence, risk due to hurricane storm surge and associated impacts to property and critical infrastructure remains. These threats will be exacerbated, factoring in predicted sea level rise over time. Increasing temperatures and more frequent and more severe storms also increase demands on infrastructure. Increased runoff frequency and volume can strain the stormwater system and the capacity of Four Mile Run itself. More frequent runoff at a higher velocity from roadways and parking lots into the run can also increase pollutants, erosion, and flooding. As these types of events happen more often, costs of maintenance and repair also rise.

Implementing stormwater best management practices (BMPs), particularly in the form of green infrastructure, can help control and manage runoff and floodwaters. The County has strongly encouraged inclusion of green BMPs into development and redevelopment of the Four Mile Run corridor. The 2014 Stormwater Master Plan lays out the County’s approach to use both regulatory strategies and infrastructure improvements to meet pollution reduction goals as well as be prepared for the potential effects of climate change. Adopting the comprehensive new Stormwater Management Ordinance, stream restoration projects, and upgrades to the Water Pollution Control Plant are all cited as achievements. The plan also encourages participating with local, state, regional, and federal agencies in increasing the region’s resiliency to the impacts on climate change, particularly on stormwater infrastructure, and continued outreach with the public about the risk of flooding.
Note: see following page for photos (numbered); See Figure B.4 for cross section
Reach 1 is adjacent to Jennie Dean Park, between the Shirlington pedestrian bridge and S. Shirlington Road. On the left bank (looking downstream), the active channel slopes away more gradually with a floodplain bench towards Jennie Dean Park. The floodplain and Regulatory Floodway locations are within the park itself. A riprap island exists downstream from the pedestrian bridge, and two weir structures exist with the upstream one appearing to be responsible for the formation of two channel bars creating some meandering through this section during low flow conditions. The right bank is steep (2:1 typical) and armored with riprap, with the top of channel and Four Mile Run Trail tight to S. Four Arlington Mill Drive. Most of this reach provides little accessibility to the water’s edge, due to the chain link fence which runs along the top of bank through Jennie Dean Park to the pedestrian bridge and the steep armored slopes along the southern bank. The gentler slopes and vegetated bench located along the edge of the park provides a natural connection to the run and an informal footpath around the chain link fence was observed indicating a desire for greater accessibility through this reach.
FIGURE B.2: FOUR MILE RUN, REACH 2

Note: see following page for photos (numbered); See Figure B.4 for cross section
Reach 2, between Walter Reed Drive and the Shirlington pedestrian bridge, is the most constrained and channelized stretch of Four Mile Run in the study area. The channel geometry includes a uniform cross-section of steep, armored banks on both sides, with the Regulatory Floodway generally contained within trapezoidal cross section. The steep side slopes result in a more highly engineered, channelized geometry and wider bottom condition, allowing for some natural low-flow meander. Six weir structures provide the only pool/riffle features observed, and several channel bars (both point and medial) of accumulated stones and small boulders exist through the reach; two of these are natural gathering points for human activity near Shirlington Dog Park. Because both banks are armored, minimal erosion and scour conditions exist. Accessibility to the run is limited due to the steep banks on both sides; however, this reach currently provides the only formal public access to the water via stone stairs from the top of bank to “rock beaches” located at the dog park.
FIGURE B.3: FOUR MILE RUN, REACH 3

Note: see following page for photos (numbered); See Figure B.4 for cross section
Reach 3 between Barcroft Park and Walter Reed Drive has channel geometry that is slightly less constrained and channelized than Reach 2 just downstream. The Regulatory Floodway is generally contained within the top of bank. The left bank (looking downstream) is armored with riprap from the top of the bank to the water’s edge and the right slope is generally armored from the top of the bank to a vegetated bench, which then transitions to a steep eroded slope to the water’s edge. The right bank condition effectively expands the low-flow width and provides additional floodplain above bankfull elevation. Vegetation and trees have filled in over time on both banks, and erosion and scour at/near the toe of slope is visible along the right bank where armoring is not present. Point bars and riffle pool sequences are visible as the channel is attempting to form its own natural meanders, even within the constrained urban section. This reach provides the greatest accessibility to the run via the meandering bike path located along the top of the south bank. Numerous access points provide a direct connection from the path to the edge of water.
FIGURE B.4: FOUR MILE RUN, EXISTING CONDITIONS CROSS SECTIONS

Reach 3: Section A-A
Reach 2: Section B-B
Reach 1: Section C-C
The “Nauck Branch” tributary to Four Mile Run is currently daylighted through most of the project area, but largely hidden from public view behind existing private building and parking areas. The tributary is highly channelized, in many cases with structural bank failures immediately adjacent to parking areas as seen in the photos to the right. Repairs to include potential bank enhancements and public access improvements will require negotiation with property owners, as the tributary itself is subject to private landowners’ control.

Note: see following page for photos (numbered); See Figure B.6 for cross section
FIGURE B.6: NAUCK BRANCH, EXISTING CONDITIONS CROSS SECTIONS

SECTION D-D

SECTION E-E

Nauck Branch: Section D-D

Nauck Branch: Section E-E
Chapter 3, pages 3.8-3.9, provides a framework for Four Mile Run Stream Restoration and Stabilization. Plan concepts are further detailed and illustrated in this Appendix, including a toolkit of recommended practices for implementation.

**FIGURE B.7: Stream Restoration Cross Section X-X**

*Note: See framework, Chapter 3, Figure 3.5*
FIGURE B.8: Stream Restoration Cross Section Y-Y

Note: See framework, Chapter 3, Figure 3.5

SECTION Y-Y₁
## STREAM RESTORATION AND STABILIZATION TOOLKIT

The Four Mile Run and Nauck Branch Stream Restoration and Stabilization Toolkit includes a menu of potential practices to stabilize slopes, improve water quality, add wildlife habitat value, improve drainage function, increase public awareness, and improve aesthetics.

<table>
<thead>
<tr>
<th>Practice</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural Bank Stabilization/Armoring (grey)</td>
<td>Structural bank stabilization, as currently employed throughout the Four Mile Run channel in the study area (rip rap), utilizes large stone, walls, or other hard-armoring practices to stabilize slopes.</td>
</tr>
<tr>
<td>Living Shoreline Bank Stabilization (green)</td>
<td>Living shoreline treatments are an alternative to hard-armored solutions, utilizing a variety of structural and organic materials such as wetland plants, vegetation, coir logs, and stone to stabilize shorelines while improving water quality and restoring aquatic and terrestrial habitat.</td>
</tr>
<tr>
<td>Buffer Restoration</td>
<td>Restored vegetated buffers slow runoff, filter pollutants and excess nutrients, reduce erosive forces on banks, and provide habitat value.</td>
</tr>
<tr>
<td>Invasive Plant Management</td>
<td>Control of non-native species with a tendency to spread will reduce negative impacts to the environment, local economy, and human health.</td>
</tr>
<tr>
<td>Trash/Litter Cleanup and Maintenance</td>
<td>In addition to improving aesthetics and sense of stewardship for the area, an enhanced trash/litter cleanup program will improve drainage system function.</td>
</tr>
<tr>
<td>Long-term Low Flow Channel Manipulation</td>
<td>Long-term efforts to naturalize the Four Mile Run channel will utilize techniques such as point bars and levee removal to add sinuosity, reduce velocities, add habitat value, and improve aesthetics.</td>
</tr>
</tbody>
</table>
GREEN INFRASTRUCTURE

Stormwater management infrastructure in the study area generally consists of curb and gutter, catch basin, and underground pipe closed drainage systems with runoff discharge to pipe outfalls in Four Mile Run.

As defined by the Environmental Protection Agency, green infrastructure (GI) uses natural hydrologic features to manage water and provide environmental and community benefits. The term generally refers to site planning and stormwater management practices that mimic nature to infiltrate, evaporate, or harvest and use stormwater runoff as close to its source as possible. The GI approach is based on four fundamental principles:

1. Treat stormwater as a resource rather than a waste product;
2. Preserve and/or recreate natural landscape features;
3. Minimize the effects of impervious cover; and
4. Implement stormwater control measures that rely on natural systems to manage runoff.

In other words, GI emphasizes simple site design techniques and natural stormwater practices to get rainfall filtered and back into the atmosphere and ground as close to where it falls as possible. GI is very often a more cost-effective stormwater management alternative compared to more highly engineered structural practices, and in addition, provides community benefits ranging from traffic calming to increases in aesthetics and property value. A robust maintenance program is needed to ensure GI continues to perform its valuable stormwater management and ecological functions and remains an aesthetic amenity.

GI can be implemented as part of public and private development projects, and at a wide range of scales, in place of or in addition to more traditional stormwater control elements. Common green infrastructure tools, or BMPs, include:

- Bioretention systems, or rain gardens – slightly depressed landscape areas designed to utilize soil and plants to filter runoff, and infiltrate runoff where allowable. Typically systems are designed to manage runoff from frequent, small magnitude storm events, with bypass to larger flood control systems during larger storm events.
- Flow-through planters – usually next to buildings, waterproof structures filled with gravel and planting soil to temporarily store and filter runoff, with excess water drained via a perforated underdrain.
- Selective application of permeable paving surfaces – potentially including permeable bituminous, porous concrete, pavers, bricks, and other surfaces designed to allow infiltration where allowable.
- Green roofs are covered with vegetation and a growing medium installed over a waterproof membrane. Green roofs absorb rainwater, provide insulation, create wildlife habitat, and help to mitigate urban heat island effect and lower urban air temperatures.
- Tree planting – with thirsty root systems functioning as stormwater management machines, urban trees also provide a host of other health, happiness, and value benefits.
- Tree box filters – Street trees can also be planted within tree box filters, which are in-ground tree “containers” designed to receive, naturally filter, and infiltrate runoff from adjacent impervious areas such as streets and/or walks.

The County Stormwater Management Plan identifies seven high priority retrofit projects within its study area. The first green street retrofit was installed by the County on Patrick Henry Street in 2011, including installation of two bioretention areas treating runoff from 0.75 acres of contributing area. Five years later, the system has been generally positively received and is still well-maintained and functioning. Several additional projects have been constructed, and multiple County-led green street retrofit projects are in various stages of design and implementation.
GREEN INFRASTRUCTURE TOOLKIT

The Green Infrastructure and Sustainability Toolkit includes a menu of site design techniques and stormwater Best Management Practices (BMPs) to improve environmental impacts consistent with the project vision and Green Infrastructure framework. Design techniques and BMPs must be carefully weighed for their cost-effectiveness, functional benefit, ease of maintenance, and appropriateness to project vision and context. Detailed design should creatively express the Valley’s urban design vision and aesthetic language.

<table>
<thead>
<tr>
<th>Practice</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depaving &amp; Tree Planting</td>
<td>Interventions to replace extraneous impervious surfaces with planted landscape, including tree planting wherever possible.</td>
</tr>
<tr>
<td>Bioswale</td>
<td>Linear vegetated landscape elements designed to convey runoff.</td>
</tr>
<tr>
<td>Bioretention System</td>
<td>Vegetated landscape depressions designed to collect and filter stormwater runoff.</td>
</tr>
<tr>
<td>Tree Filter Pit</td>
<td>Structural tree boxes designed to accept stormwater runoff for irrigation and filtering.</td>
</tr>
<tr>
<td>Stormwater Planter</td>
<td>Raised planters designed to accept roof runoff for filtering, with overflow during larger storm events.</td>
</tr>
<tr>
<td>Porous Pavement</td>
<td>A range of free-draining alternatives to typical impervious pavement, including pervious concrete, porous asphalt, pavers, and structured grass.</td>
</tr>
<tr>
<td>Constructed Wetlands</td>
<td>Constructed systems mimicking natural wetlands, designed to be wet at all times either in saturated soil or standing water.</td>
</tr>
<tr>
<td>Underground Chambers</td>
<td>Underground systems such as buried pipes or proprietary chamber structures, designed to temporarily hold a set amount of water while slowly releasing to another location.</td>
</tr>
<tr>
<td>Detention Basins</td>
<td>A low-lying area designed to temporarily hold a set amount of water while slowly releasing to another location.</td>
</tr>
</tbody>
</table>
CONSULTANT TEAM:

DOVER, KOHL & PARTNERS, Town Planning, Area Plan Lead Consultant
TOOLE DESIGN GROUP, Multimodal Transportation Planning
HORSLEY WITTEN GROUP, Environmental Analysis & Green Infrastructure
WRT, Parks & Open Space Planning
PARTNERS FOR ECONOMIC SOLUTIONS, Implementation Strategy
COX GRAAE + SPACK, Historic Resources Analysis

LARDNER KLEIN LANDSCAPE ARCHITECTS, Parks Master Plan Lead Consultant